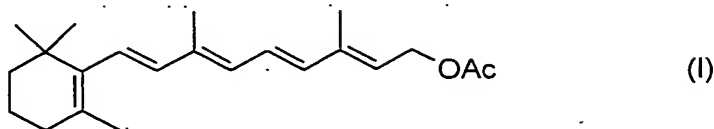


We claim:

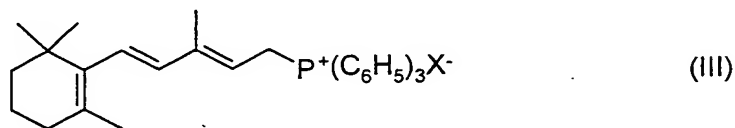
1. A process for preparing vitamin A acetate of the formula (I)



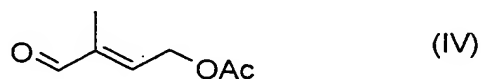
by reacting β -vinylnionol of the formula (II)



with triphenylphosphine in the presence of sulfuric acid to give the C15 salt of the formula (III)



where X^- is HSO_4^- and/or $CH_3SO_4^-$, and subsequent Wittig reaction with C5 acetate of the formula (IV)



in water as solvent and in the presence of a base, wherein the synthesis of C15 salt of the formula III starts from β -vinylnionol in a solvent mixture consisting of

- 60 to 80% by weight methanol,
- 10 to 20% by weight water and
- 10 to 20% by weight aliphatic, cyclic or aromatic hydrocarbons having 5 to 8 carbon atoms,

where the % by weight data chosen within the stated ranges must add up to 100% by weight.

2. The process according to claim 1, wherein the Wittig reaction is carried out at a

temperature of from 45 to 55°C in the presence of, based on the C15 salt employed, from 2 to 2.3 equivalents of ammonia as base.

3. The process according to claim 1 or 2, wherein the synthesis of C15 salt of the formula III is carried out at a temperature of from 45 to 55°C.
4. The process according to any of claims 1 to 3, wherein the synthesis of C15 salt of the formula III is carried out in the presence of sulfuric acid with a concentration of from 70 to 80% by weight.
5. The process according to any of claims 1 to 4, wherein
 - a. the synthesis of C15 salt of the formula III is carried out at a temperature of from 48 to 52°C in a solvent mixture consisting of
 - 64 to 72% by weight methanol,
 - 14 to 18% by weight water and
 - 14 to 18% by weight heptane which may comprise up to 40% by weight of further hydrocarbons, and
 - b. the Wittig reaction is carried out at a temperature of from 48 to 52°C in the presence of, based on the C15 salt employed, from 2.1 to 2.2 equivalents of ammonia as base.
6. The process according to any of claims 1 to 5, wherein the synthesis of C15 salt of the formula III is carried out in the presence of sulfuric acid with a concentration of from 73 to 77% by weight.
7. The process according to any of claims 1 to 6, wherein the Wittig reaction is carried out by employing C15 salt of the formula III in the form of a mixture consisting of the hydrogen sulfate ($X = \text{HSO}_4$) and the methyl sulfate ($X = \text{CH}_3\text{SO}_4$), where the proportion of methyl sulfate is from 0.1 to 15%.
8. The process according to any of claims 1 to 7, wherein the proportion of methyl sulfate is from 0.1 to 5%.
9. The process according to any of claims 1 to 8, wherein ammonia is employed in the Wittig reaction in the form of an aqueous solution with a concentration of from 5 to 20% by weight.
10. The process according to any of claims 1 to 8, which is carried out semicontinuously or entirely continuously.

11. The process according to any of claims 1 to 10, wherein the solvent mixture employed to synthesize the C15 salt is, if appropriate after restoration of the desired composition by adding at least one of the solvent components, returned to the process.